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**Listing of Claims:**

1. (Currently amended) A polymerization process comprising contacting one or more monomer(s), one or more Lewis acid(s) ~~wherein the Lewis acid metal is from Groups 4, 5, 13, 14 or 15 of the Periodic Table~~, and a diluent comprising one or more hydrofluorocarbon(s) (HFC's) in a reactor and wherein the diluent comprises from 5 to 100 volume % HFC based upon the total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa and wherein the one or more Lewis acid(s) is represented by the formula  $MR_nX_{3-n}$ ; wherein M is a Group 13 metal; each R is a monovalent  $C_1$  to  $C_{12}$  hydrocarbon radical independently selected from the group consisting of an alkyl, aryl, arylalkyl, alkylaryl and cycloalkyl radicals; n is an integer from 1 to 3; and each X is a halogen.
2. (Currently amended) The process of claim 28 ~~[[1]]~~, wherein the one or more hydrofluorocarbon(s) is represented by the formula:  $C_xH_yF_z$  wherein x is an integer from 1 to 40 and y and z are integers of one or more.
3. (Original) The process of claim 2, wherein x is from 1 to 10.
4. (Original) The process of claim 2, wherein x is from 1 to 6.
5. (Original) The process of claim 2, wherein x is from 1 to 3.
6. (Currently amended) The process of claim 28 ~~[[1]]~~, wherein the one or more hydrofluorocarbon(s) is independently selected from the group consisting of fluoromethane; difluoromethane; trifluoromethane; fluoroethane; 1,1-difluoroethane; 1,2-difluoroethane; 1,1,1-trifluoroethane; 1,1,2-trifluoroethane; 1,1,1,2-tetrafluoroethane; 1,1,2,2-tetrafluoroethane; 1,1,1,2,2-pentafluoroethane; 1-

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fluoropropane; 2-fluoropropane; 1,1-difluoropropane; 1,2-difluoropropane; 1,3-difluoropropane; 2,2-difluoropropane; 1,1,1-trifluoropropane; 1,1,2-trifluoropropane; 1,1,3-trifluoropropane; 1,2,2-trifluoropropane; 1,2,3-trifluoropropane; 1,1,1,2-tetrafluoropropane; 1,1,1,3-tetrafluoropropane; 1,1,2,2-tetrafluoropropane; 1,1,2,3-tetrafluoropropane; 1,1,3,3-tetrafluoropropane; 1,2,2,3-tetrafluoropropane; 1,1,1,2,2-pentafluoropropane; 1,1,1,2,3-pentafluoropropane; 1,1,1,3,3-pentafluoropropane; 1,1,2,2,3-pentafluoropropane; 1,1,2,3,3-pentafluoropropane; 1,1,1,2,2,3-hexafluoropropane; 1,1,1,2,3,3-hexafluoropropane; 1,1,1,3,3,3-hexafluoropropane; 1,1,1,2,2,3,3-heptafluoropropane; 1,1,1,2,3,3,3-heptafluoropropane; 1-fluorobutane; 2-fluorobutane; 1,1-difluorobutane; 1,2-difluorobutane; 1,3-difluorobutane; 1,4-difluorobutane; 2,2-difluorobutane; 2,3-difluorobutane; 1,1,1-trifluorobutane; 1,1,2-trifluorobutane; 1,1,3-trifluorobutane; 1,1,4-trifluorobutane; 1,2,2-trifluorobutane; 1,2,3-trifluorobutane; 1,3,3-trifluorobutane; 2,2,3-trifluorobutane; 1,1,1,2-tetrafluorobutane; 1,1,1,3-tetrafluorobutane; 1,1,1,4-tetrafluorobutane; 1,1,2,2-tetrafluorobutane; 1,1,2,3-tetrafluorobutane; 1,1,2,4-tetrafluorobutane; 1,1,3,3-tetrafluorobutane; 1,1,3,4-tetrafluorobutane; 1,1,4,4-tetrafluorobutane; 1,2,2,3-tetrafluorobutane; 1,2,2,4-tetrafluorobutane; 1,2,3,3-tetrafluorobutane; 1,2,3,4-tetrafluorobutane; 2,2,3,3-tetrafluorobutane; 1,1,1,2,2-pentafluorobutane; 1,1,1,2,3-pentafluorobutane; 1,1,1,2,4-pentafluorobutane; 1,1,1,3,3-pentafluorobutane; 1,1,1,3,4-pentafluorobutane; 1,1,1,4,4-pentafluorobutane; 1,1,2,2,3-pentafluorobutane; 1,1,2,2,4-pentafluorobutane; 1,1,2,3,3-pentafluorobutane; 1,1,2,4,4-pentafluorobutane; 1,1,3,3,4-pentafluorobutane; 1,2,2,3,3-pentafluorobutane; 1,2,2,3,4-pentafluorobutane; 1,1,1,2,2,3-hexafluorobutane; 1,1,1,2,2,4-hexafluorobutane; 1,1,1,2,3,3-hexafluorobutane; 1,1,1,2,3,4-hexafluorobutane; 1,1,1,2,4,4-hexafluorobutane; 1,1,1,3,3,4-hexafluorobutane; 1,1,1,3,4,4-hexafluorobutane; 1,1,1,4,4,4-hexafluorobutane; 1,1,2,2,3,3-hexafluorobutane; 1,1,2,2,3,4-hexafluorobutane; 1,1,2,2,4,4-hexafluorobutane; 1,1,2,3,3,4-hexafluorobutane; 1,1,2,3,4,4-hexafluorobutane; 1,2,2,3,3,4-hexafluorobutane; 1,1,1,2,2,3,3-heptafluorobutane; 1,1,1,2,2,4,4-heptafluorobutane; 1,1,1,2,2,3,4-heptafluorobutane; 1,1,1,2,3,3,4-heptafluorobutane; 1,1,1,2,3,4,4-heptafluorobutane; 1,1,1,2,4,4,4-heptafluorobutane; 1,1,1,3,3,4,4-heptafluorobutane; 1,1,1,2,2,3,3,4-octafluorobutane; 1,1,1,2,2,3,4,4-

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octafluorobutane; 1,1,1,2,3,3,4,4-octafluorobutane; 1,1,1,2,2,4,4,4-octafluorobutane; 1,1,1,2,3,4,4,4-octafluorobutane; 1,1,1,2,2,3,3,4,4-nonafluorobutane; 1,1,1,2,2,3,4,4,4-nonafluorobutane; 1-fluoro-2-methylpropane; 1,1-difluoro-2-methylpropane; 1,3-difluoro-2-methylpropane; 1,1,1-trifluoro-2-methylpropane; 1,1,3-trifluoro-2-methylpropane; 1,3-difluoro-2-(fluoromethyl)propane; 1,1,1,3-tetrafluoro-2-methylpropane; 1,1,3,3-tetrafluoro-2-methylpropane; 1,1,3-trifluoro-2-(fluoromethyl)propane; 1,1,1,3,3-pentafluoro-2-methylpropane; 1,1,3,3-tetrafluoro-2-(fluoromethyl)propane; 1,1,1,3-tetrafluoro-2-(fluoromethyl)propane; fluorocyclobutane; 1,1-difluorocyclobutane; 1,2-difluorocyclobutane; 1,3-difluorocyclobutane; 1,1,2-trifluorocyclobutane; 1,1,3-trifluorocyclobutane; 1,2,3-trifluorocyclobutane; 1,1,2,2-tetrafluorocyclobutane; 1,1,3,3-tetrafluorocyclobutane; 1,1,2,2,3-pentafluorocyclobutane; 1,1,2,3,3-pentafluorocyclobutane; 1,1,2,2,3,3-hexafluorocyclobutane; 1,1,2,2,3,4-hexafluorocyclobutane; 1,1,2,3,3,4-hexafluorocyclobutane; 1,1,2,2,3,3,4-heptafluorocyclobutane; vinyl fluoride; 1,1-difluoroethene; 1,2-difluoroethene; 1,1,2-trifluoroethene; 1-fluoropropene, 1,1-difluoropropene; 1,2-difluoropropene; 1,3-difluoropropene; 2,3-difluoropropene; 3,3-difluoropropene; 1,1,2-trifluoropropene; 1,1,3-trifluoropropene; 1,2,3-trifluoropropene; 1,3,3-trifluoropropene; 2,3,3-trifluoropropene; 3,3,3-trifluoropropene; 1-fluoro-1-butene; 2-fluoro-1-butene; 3-fluoro-1-butene; 4-fluoro-1-butene; 1,1-difluoro-1-butene; 1,2-difluoro-1-butene; 1,3-difluoropropene; 1,4-difluoro-1-butene; 2,3-difluoro-1-butene; 2,4-difluoro-1-butene; 3,3-difluoro-1-butene; 3,4-difluoro-1-butene; 4,4-difluoro-1-butene; 1,1,2-trifluoro-1-butene; 1,1,3-trifluoro-1-butene; 1,1,4-trifluoro-1-butene; 1,2,3-trifluoro-1-butene; 1,2,4-trifluoro-1-butene; 1,3,3-trifluoro-1-butene; 1,3,4-trifluoro-1-butene; 1,4,4-trifluoro-1-butene; 2,3,3-trifluoro-1-butene; 2,3,4-trifluoro-1-butene; 2,4,4-trifluoro-1-butene; 3,3,4-trifluoro-1-butene; 3,4,4-trifluoro-1-butene; 4,4,4-trifluoro-1-butene; 1,1,2,3-tetrafluoro-1-butene; 1,1,2,4-tetrafluoro-1-butene; 1,1,3,3-tetrafluoro-1-butene; 1,1,3,4-tetrafluoro-1-butene; 1,1,4,4-tetrafluoro-1-butene; 1,2,3,3-tetrafluoro-1-butene; 1,2,3,4-tetrafluoro-1-butene; 1,2,4,4-tetrafluoro-1-butene; 1,3,3,4-tetrafluoro-1-butene; 1,3,4,4-tetrafluoro-1-butene; 1,4,4,4-tetrafluoro-1-butene; 2,3,3,4-tetrafluoro-1-butene; 2,3,4,4-tetrafluoro-1-butene; 2,4,4,4-tetrafluoro-1-butene; 3,3,4,4-tetrafluoro-1-butene;

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3,4,4,4-tetrafluoro-1-butene; 1,1,2,3,3-pentafluoro-1-butene; 1,1,2,3,4-pentafluoro-1-butene; 1,1,2,4,4-pentafluoro-1-butene; 1,1,3,3,4-pentafluoro-1-butene; 1,1,3,4,4-pentafluoro-1-butene; 1,1,4,4,4-pentafluoro-1-butene; 1,2,3,3,4-pentafluoro-1-butene; 1,2,3,4,4-pentafluoro-1-butene; 1,2,4,4,4-pentafluoro-1-butene; 2,3,3,4,4-pentafluoro-1-butene; 2,3,4,4,4-pentafluoro-1-butene; 3,3,4,4,4-pentafluoro-1-butene; 1,1,2,3,3,4-hexafluoro-1-butene; 1,1,2,3,4,4-hexafluoro-1-butene; 1,1,2,4,4,4-hexafluoro-1-butene; 1,2,3,3,4,4-hexafluoro-1-butene; 1,2,3,4,4,4-hexafluoro-1-butene; 2,3,3,4,4,4-hexafluoro-1-butene; 1,1,2,3,3,4,4-heptafluoro-1-butene; 1,1,2,3,4,4,4-heptafluoro-1-butene; 1,1,3,3,4,4,4-heptafluoro-1-butene; 1,2,3,3,4,4,4-heptafluoro-1-butene; 1-fluoro-2-butene; 2-fluoro-2-butene; 1,1-difluoro-2-butene; 1,2-difluoro-2-butene; 1,3-difluoro-2-butene; 1,4-difluoro-2-butene; 2,3-difluoro-2-butene; 1,1,1-trifluoro-2-butene; 1,1,2-trifluoro-2-butene; 1,1,3-trifluoro-2-butene; 1,1,4-trifluoro-2-butene; 1,2,3-trifluoro-2-butene; 1,2,4-trifluoro-2-butene; 1,1,1,2-tetrafluoro-2-butene; 1,1,1,3-tetrafluoro-2-butene; 1,1,1,4-tetrafluoro-2-butene; 1,1,2,3-tetrafluoro-2-butene; 1,1,2,4-tetrafluoro-2-butene; 1,2,3,4-tetrafluoro-2-butene; 1,1,1,2,3-pentafluoro-2-butene; 1,1,1,2,4-pentafluoro-2-butene; 1,1,1,3,4-pentafluoro-2-butene; 1,1,1,4,4-pentafluoro-2-butene; 1,1,2,3,4-pentafluoro-2-butene; 1,1,2,4,4-pentafluoro-2-butene; 1,1,1,2,3,4-hexafluoro-2-butene; 1,1,1,2,4,4-hexafluoro-2-butene; 1,1,1,3,4,4-hexafluoro-2-butene; 1,1,1,4,4,4-hexafluoro-2-butene; 1,1,2,3,4,4-hexafluoro-2-butene; 1,1,1,2,3,4,4-heptafluoro-2-butene; 1,1,1,2,4,4,4-heptafluoro-2-butene; and mixtures thereof.

7. (Currently amended) The process of claim 28 [[1]], wherein the one or more hydrofluorocarbon(s) is independently selected from the group consisting of fluoromethane, difluoromethane, trifluoromethane, 1,1-difluoroethane, 1,1,1-trifluoroethane, 1,1,1,2-tetrafluoroethane, and mixtures thereof.
8. (Canceled)
9. (Original) The process of claim 1, wherein the diluent comprises from 20 to 100 volume % HFC based upon the total volume of the diluent.

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10. (Original) The process of claim 1, wherein the diluent comprises from 25 to 100 volume % HFC based upon the total volume of the diluent.
11. (Currently amended) The process of claim 28 [[1]], wherein the diluent further comprises a hydrocarbon, a non-reactive olefin, and/or an inert gas.
12. (Currently amended) The process of claim 28 [[1]], wherein the diluent further comprises a halogenated hydrocarbon other than an HFC.
13. (Currently amended) The process of claim 28 [[1]], wherein the diluent further comprises methyl chloride.
14. (Currently amended) The process of claim 28 [[1]], wherein the one or more Lewis acid(s) is represented by the formula  $MX_4$ ;  
wherein M is a Group 4, 5, or 14 metal; and  
each X is a halogen.
15. (Currently amended) The process of claim 28 [[1]], wherein the one or more Lewis acid(s) is represented by the formula  $MR_nX_{4-n}$ ;  
wherein M is Group 4, 5, or 14 metal;  
each R is a monovalent  $C_1$  to  $C_{12}$  hydrocarbon radical independently selected from the group consisting of an alkyl, aryl, arylalkyl, alkylaryl and cycloalkyl radicals;  
 $n$  is an integer from 0 to 4; and  
each X is a halogen.
16. (Currently amended) The process of claim 28 [[1]], wherein the one or more Lewis acid(s) is represented by the formula  $M(RO)_nR'_mX_{4-(m+n)}$ ;  
wherein M is Group 4, 5, or 14 metal;  
each RO is a monovalent  $C_1$  to  $C_{30}$  hydrocarboxy radical independently selected from the group consisting of an alkoxy, aryloxy, arylalkoxy, alkylaryloxy radicals;

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each R' is a monovalent C<sub>1</sub> to C<sub>12</sub> hydrocarbon radical independently selected from the group consisting of an alkyl, aryl, arylalkyl, alkylaryl and cycloalkyl radicals;  
n is an integer from 0 to 4;  
m is an integer from 0 to 4, wherein the sum of n and m is not more than 4; and  
each X is a halogen.

17. (Currently amended) The process of claim 28 [[1]], wherein the one or more Lewis acid(s) is represented by the formula  $M(RC=OO)_nR'_mX_{4-(m+n)}$ ;  
wherein M is Group 4, 5, or 14 metal;  
each RC=OO is a monovalent C<sub>2</sub> to C<sub>30</sub> hydrocarbacyl radical independently selected from the group consisting of an alkacyloxy, arylacyloxy, arylalkylacyloxy, alkylarylacyloxy radicals;  
each R' is a monovalent C<sub>1</sub> to C<sub>12</sub> hydrocarbon radical independently selected from the group consisting of an alkyl, aryl, arylalkyl, alkylaryl and cycloalkyl radicals;  
n is an integer from 0 to 4;  
m is an integer from 0 to 4, wherein the sum of n and m is not more than 4; and  
each X is a halogen.
18. (Currently amended) The process of claim 28 [[1]], wherein the one or more Lewis acid(s) is represented by the formula  $MOX_3$ ;  
wherein M is a Group 5 metal; and  
each X is a halogen.
19. (Canceled)
20. (Currently amended) The process of claim 28 [[1]], wherein the one or more Lewis acid(s) is represented by the formula  $M(RO)_nR'_mX_{3-(m+n)}$ ;  
wherein M is a Group 13 metal;  
each RO is a monovalent C<sub>1</sub> to C<sub>30</sub> hydrocarboxy radical independently selected from the group consisting of an alkoxy, aryloxy, arylalkoxy, alkylaryloxy radicals;

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each R' is a monovalent C<sub>1</sub> to C<sub>12</sub> hydrocarbon radical independently selected from the group consisting of an alkyl, aryl, arylalkyl, alkylaryl and cycloalkyl radicals;

n is an integer from 0 to 3;

m is an integer from 0 to 3, wherein the sum of n and m is from 1 to 3; and

each X is a halogen.

21. (Currently amended) The process of claim 28 [[1]], wherein the one or more Lewis acid(s) is represented by the formula  $M(RC=OO)_nR'_mX_{3-(m+n)}$ ;

wherein M is a Group 13 metal;

each RC=OO is a monovalent C<sub>2</sub> to C<sub>30</sub> hydrocarbacyl radical independently selected from the group independently selected from the group consisting of an alkacyloxy, arylacyloxy, arylalkylacyloxy, alkylarylacyloxy radicals;

each R' is a monovalent C<sub>1</sub> to C<sub>12</sub> hydrocarbon radical independently selected from the group consisting of an alkyl, aryl, arylalkyl, alkylaryl and cycloalkyl radicals;

n is an integer from 0 to 3;

m is a integer from 0 to 3, wherein the sum of n and m is from 1 to 3; and

each X is a halogen.

22. (Currently amended) The process of claim 1, A polymerization process comprising contacting one or more monomer(s), one or more Lewis acid(s), and a diluent comprising one or more hydrofluorocarbon(s) (HFC's) in a reactor and wherein the diluent comprises from 5 to 100 volume % HFC based upon the total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa and wherein the one or more Lewis acid(s) is represented by the formula  $MX_y$ ;

wherein M is a Group 15 metal;

each X is a halogen; and

y is 3, 4 or 5.

23. (Currently amended) The process of claim 1, A polymerization process comprising contacting one or more monomer(s), one or more Lewis acid(s), and a diluent

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comprising one or more hydrofluorocarbon(s) (HFC's) in a reactor and wherein the diluent comprises from 5 to 100 volume % HFC based upon the total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa and wherein the one or more Lewis acid(s) is represented by the formula  $MR_nX_{y-n}$ ;

wherein M is a Group 15 metal;

each R is a monovalent  $C_1$  to  $C_{12}$  hydrocarbon radical independently selected from the group consisting of an alkyl, aryl, arylalkyl, alkylaryl and cycloalkyl radicals;

$n$  is an integer from 0 to 4;

$y$  is 3, 4 or 5, wherein  $n$  is less than  $y$ ; and

each X is a halogen.

24. (Currently amended) ~~The process of claim 1,~~ A polymerization process comprising contacting one or more monomer(s), one or more Lewis acid(s), and a diluent comprising one or more hydrofluorocarbon(s) (HFC's) in a reactor and wherein the diluent comprises from 5 to 100 volume % HFC based upon the total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa and wherein the one or more Lewis acid(s) is represented by the formula  $M(RO)_nR'_mX_{y-(m+n)}$ ;

wherein M is a Group 15 metal,

each RO is a monovalent  $C_1$  to  $C_{30}$  hydrocarboxy radical independently selected from the group consisting of an alkoxy, aryloxy, arylalkoxy, alkylaryloxy radicals;

each R' is a monovalent  $C_1$  to  $C_{12}$  hydrocarbon radical independently selected from the group consisting of an alkyl, aryl, arylalkyl, alkylaryl and cycloalkyl radicals;

$n$  is an integer from 0 to 4;

$m$  is an integer from 0 to 4;

$y$  is 3, 4 or 5, wherein the sum of  $n$  and  $m$  is less than  $y$ ; and

each X is a halogen.

25. (Currently amended) ~~The process of claim 1,~~ A polymerization process comprising contacting one or more monomer(s), one or more Lewis acid(s), and a diluent





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diethylaluminum chloride, dimethylaluminum chloride, ethylaluminum sesquichloride, methylaluminum sesquichloride, trimethylaluminum, triethylaluminum, methoxyaluminum dichloride, ethoxyaluminum dichloride, 2,6-di-tert-butylphenoxyaluminum dichloride, methoxy methylaluminum chloride, 2,6-di-tert-butylphenoxy methylaluminum chloride, isopropoxygallium dichloride, phenoxy methylindium fluoride, acetoxyaluminum dichloride, benzyloxyaluminum dibromide, benzyloxygallium difluoride, methyl acetoxyaluminum chloride, isopropoxyindium trichloride, antimony hexachloride, antimony hexafluoride, arsenic pentafluoride, antimony chloride pentafluoride, arsenic trifluoride, bismuth trichloride arsenic fluoride tetrachloride, tetraphenylantimony chloride, triphenylantimony dichloride, tetrachloromethoxyantimony, dimethoxytrichloroantimony, dichloromethoxyarsine, chlorodimethoxyarsine, difluoromethoxyarsine, acetatotetrachloroantimony, (benzoato) tetrachloroantimony, and bismuth acetate chloride.

27. (Currently amended) The process of claim 28 [[1]], wherein the one or more Lewis acid(s) is independently selected from the group consisting of ethylaluminum dichloride, ethylaluminum sesquichloride, diethylaluminum chloride, methylaluminum dichloride, methylaluminum sesquichloride, dimethylaluminum chloride, and titanium tetrachloride.
28. (Currently amended) The process of claim 1, A polymerization process comprising contacting one or more monomer(s), one or more Lewis acid(s) wherein the Lewis acid metal is from Groups 4, 5, 13, 14 or 15 of the Periodic Table, and a diluent comprising one or more hydrofluorocarbon(s) (HFC's) in a reactor and wherein the diluent comprises from 5 to 100 volume % HFC based upon the total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa and wherein the process further comprises one or more initiator(s) [[is]] independently selected from the group consisting of a hydrogen halide, a carboxylic acid, a carboxylic acid halide, a sulfonic acid, an alcohol, a phenol, a polymeric halide, a tertiary alkyl halide, a tertiary aralkyl halide, a tertiary

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alkyl ester, a tertiary aralkyl ester, a tertiary alkyl ether, a tertiary aralkyl ether, an alkyl halide, an aryl halide, an alkylaryl halide and an arylalkylacid halide.

29. (Currently amended) ~~The process of claim 1,~~ A polymerization process comprising contacting one or more monomer(s), one or more Lewis acid(s) wherein the Lewis acid metal is from Groups 4, 5, 13, 14 or 15 of the Periodic Table, and a diluent comprising one or more hydrofluorocarbon(s) (HFC's) in a reactor and wherein the diluent comprises from 5 to 100 volume % HFC based upon the total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa and wherein the process further comprises one or more initiator(s) [[is]] independently selected from the group consisting of HCl, H<sub>2</sub>O, methanol, (CH<sub>3</sub>)<sub>3</sub>CCl, C<sub>6</sub>H<sub>5</sub>C(CH<sub>3</sub>)<sub>2</sub>Cl, (2-Chloro-2,4,4-trimethylpentane) and 2-chloro-2-methylpropane.
30. (Currently amended) ~~The process of claim 1,~~ A polymerization process comprising contacting one or more monomer(s), one or more Lewis acid(s) wherein the Lewis acid metal is from Groups 4, 5, 13, 14 or 15 of the Periodic Table, and a diluent comprising one or more hydrofluorocarbon(s) (HFC's) in a reactor and wherein the diluent comprises from 5 to 100 volume % HFC based upon the total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa and wherein the process further comprises one or more initiator(s) [[is]] independently selected from the group consisting of hydrogen chloride, hydrogen bromide, hydrogen iodide, acetic acid, propanoic acid, butanoic acid; cinnamic acid, benzoic acid, 1-chloroacetic acid, dichloroacetic acid, trichloroacetic acid, trifluoroacetic acid, p-chlorobenzoic acid, p-fluorobenzoic acid, acetyl chloride, acetyl bromide, cinnamyl chloride, benzoyl chloride, benzoyl bromide, trichloroacetylchloride, trifluoroacetylchloride, p-fluorobenzoylchloride, methanesulfonic acid, trifluoromethanesulfonic acid, trichloromethanesulfonic acid, p-toluenesulfonic acid, methanesulfonyl chloride, methanesulfonyl bromide, trichloromethanesulfonyl chloride, trifluoromethanesulfonyl chloride, p-toluenesulfonyl chloride, methanol, ethanol, propanol, 2-propanol, 2-methylpropan-2-

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ol, cyclohexanol, benzyl alcohol, phenol, 2-methylphenol, 2,6-dimethylphenol, p-chlorophenol, p-fluorophenol, 2,3,4,5,6-pentafluorophenol, and 2-hydroxynaphthalene.

31. (Currently amended) The process of claim 1, A polymerization process comprising contacting one or more monomer(s), one or more Lewis acid(s) wherein the Lewis acid metal is from Groups 4, 5, 13, 14 or 15 of the Periodic Table, and a diluent comprising one or more hydrofluorocarbon(s) (HFC's) in a reactor and wherein the diluent comprises from 5 to 100 volume % HFC based upon the total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa and wherein the process further comprises one or more initiator(s) [[is]] independently selected from the group consisting of 2-chloro-2,4,4-trimethylpentane; 2-bromo-2,4,4-trimethylpentane; 2-chloro-2-methylpropane; 2-bromo-2-methylpropane; 2-chloro-2,4,4,6,6-pentamethylheptane; 2-bromo-2,4,4,6,6-pentamethylheptane; 1-chloro-1-methylethylbenzene; 1-chloroadamantane; 1-chloroethylbenzene; 1, 4-bis(1-chloro-1-methylethyl) benzene; 5-tert-butyl-1,3-bis(1-chloro-1-methylethyl) benzene; 2-acetoxy-2,4,4-trimethylpentane; 2-benzoyloxy-2,4,4-trimethylpentane; 2-acetoxy-2-methylpropane; 2-benzoyloxy-2-methylpropane; 2-acetoxy-2,4,4,6,6-pentamethylheptane; 2-benzoyl-2,4,4,6,6-pentamethylheptane; 1-acetoxy-1-methylethylbenzene; 1-acetoxadamantane; 1-benzoyloxyethylbenzene; 1,4-bis(1-acetoxy-1-methylethyl) benzene; 5-tert-butyl-1,3-bis(1-acetoxy-1-methylethyl) benzene; 2-methoxy-2,4,4-trimethylpentane; 2-isopropoxy-2,4,4-trimethylpentane; 2-methoxy-2-methylpropane; 2-benzoyloxy-2-methylpropane; 2-methoxy-2,4,4,6,6-pentamethylheptane; 2-isopropoxy-2,4,4,6,6-pentamethylheptane; 1-methoxy-1-methylethylbenzene; 1-methoxyadamantane; 1-methoxyethylbenzene; 1,4-bis(1-methoxy-1-methylethyl) benzene; 5-tert-butyl-1,3-bis(1-methoxy-1-methylethyl) benzene, and 1,3,5-tris(1-chloro-1-methylethyl) benzene.
32. (Currently amended) The process of claim 1, A polymerization process comprising contacting one or more monomer(s), one or more Lewis acid(s) wherein the Lewis acid metal is from Groups 4, 5, 13, 14 or 15 of the Periodic Table, and a diluent



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38. (Currently amended) The process of claim 28 [[1]] wherein the diluent has a dielectric constant greater than 10 at -85°C.
39. (Original) The process of claim 38, wherein the dielectric constant is greater than 20 at -85°C.
40. (Original) The process of claim 39, wherein the dielectric constant is greater than 25 at -85°C.
41. (Original) The process of claim 40, wherein the dielectric constant is greater than 40 at -85°C.
42. (Currently amended) The process of claim 28 [[1]], wherein the process forms a polymer having a diluent mass uptake of less than 4 wt%.
43. (Original) The process of claim 42, wherein the polymer has a diluent mass uptake of less than 3 wt%.
44. (Original) The process of claim 43, wherein the polymer has a diluent mass uptake of less than 2 wt%.
45. (Original) The process of claim 44, wherein the polymer has a diluent mass uptake of less than 1 wt%.
46. (Original) The process of claim 45, wherein the polymer has a diluent mass uptake of less than 0.5 wt%.
47. (Currently amended) The polymerization process of claim 28 [[1]], the diluent comprising methyl chloride and one or more hydrofluorocarbon(s) independently selected from the group consisting of difluoromethane, 1,1-difluoroethane, and 1,1,1,2-tetrafluoroethane in a reactor.

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48. (Original) The process of claim 47, wherein the diluent further comprises a non-reactive olefin, and/or an inert gas.
49. (Currently amended) The polymerization process of claim 28 [[1]], the process comprising the steps of:  
reacting the one or more monomer(s) in the presence of one or more Lewis acid(s), one or more initiator(s), and a diluent comprising one or more hydrofluorocarbon(s) (HFC's); and  
withdrawing the polymer from the reactor.
50. (Currently amended) The polymerization process of claim 28 [[1]], the process comprising the steps of:  
(a) introducing one or more monomer(s) into a reactor;  
(b) adding one or more Lewis acid(s) and one or more initiator(s);  
(c) introducing a diluent comprising one or more hydrofluorocarbon(s) (HFC's);  
and  
(d) withdrawing a polymer from the reactor.
51. (Currently amended) The polymerization process of claim 28 [[1]] in which particles of polymer are produced in a slurry using a catalyst system and a diluent comprising one or more hydrofluorocarbon(s) (HFC's).
52. (Canceled)
53. (Currently amended) A polymerization medium suitable to polymerize one or more monomer(s) to form a polymer, the polymerization medium comprising one or more Lewis acid(s), one or more initiator(s) and a diluent comprising one or more hydrofluorocarbon(s) (HFC); wherein the one or more Lewis acid(s) is not a compound represented by formula  $MX_3$ , where M is a group 13 metal and X is a halogen, wherein the diluent comprises from 5 to 100 volume % HFC based upon the

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total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa, and wherein the one or more initiator(s) is independently selected from the group consisting of a hydrogen halide, a carboxylic acid, a carboxylic acid halide, a sulfonic acid, an alcohol, a phenol, a polymeric halide, a tertiary alkyl halide, a tertiary aralkyl halide, a tertiary alkyl ester, a tertiary aralkyl ester, a tertiary alkyl ether, a tertiary aralkyl ether, an alkyl halide, an aryl halide, an alkylaryl halide and an arylalkylacid halide.

Claims 54-58 (Canceled)

59. (Currently amended) A process to polymerize one or more monomer(s) to form a polymer, comprising contacting one or more monomer(s) in a [the] polymerization medium comprising one or more Lewis acid(s), a weakly coordinating anion, and a diluent comprising one or more hydrofluorocarbon(s) (HFC); wherein the one or more Lewis acid(s) is not a compound represented by formula  $MX_3$ , where M is a group 13 metal and X is a halogen, wherein the diluent comprises from 5 to 100 volume % HFC based upon the total volume of diluent, the temperature of the polymerization is less than 0°C and the pressure is from above 0 to 14,000 kPa.